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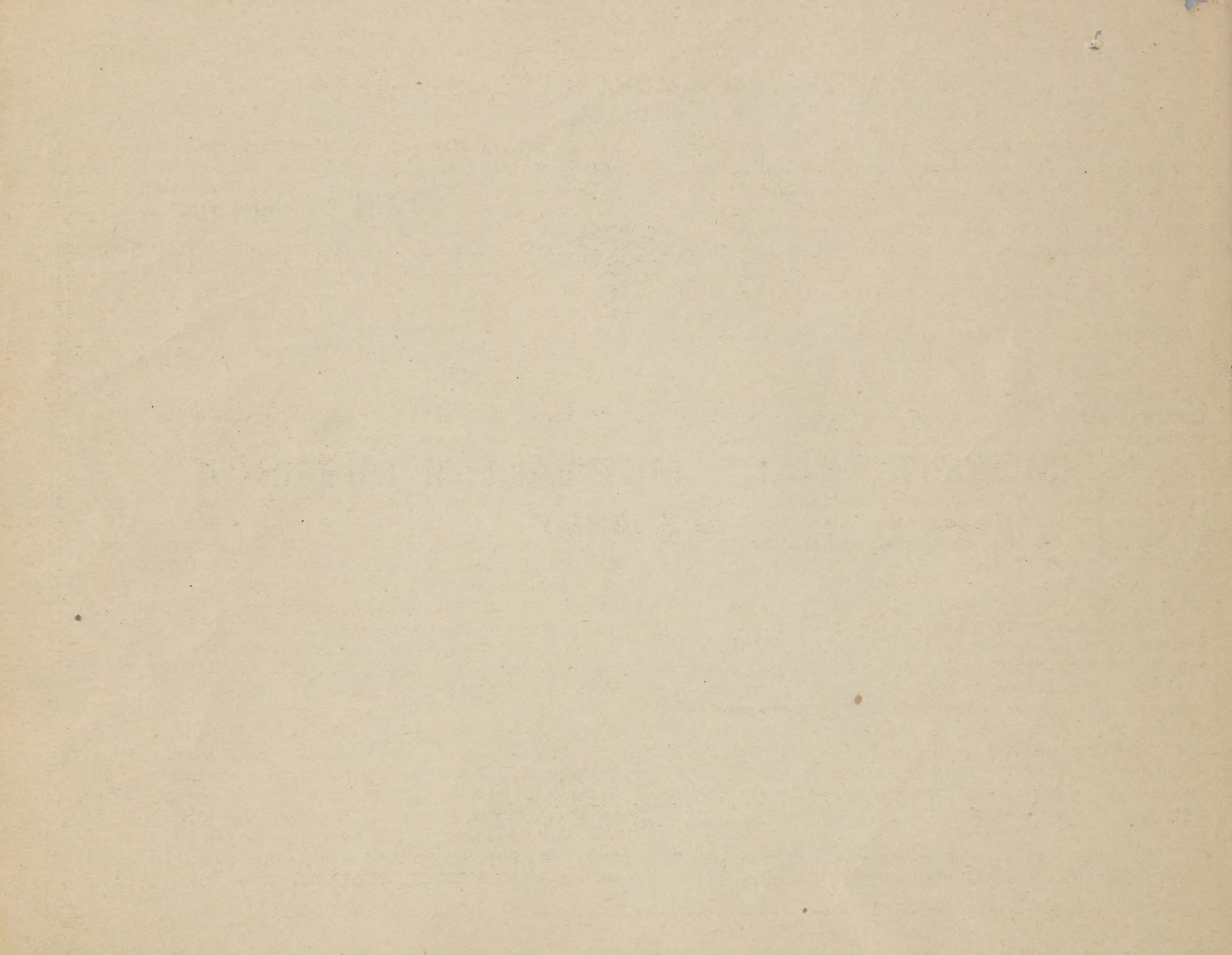
# MORBIDITY AND MORTALITY, 1819-1944

## U.S. ARMY

OFFICE OF THE SURGEON GENERAL  
MEDICAL STATISTICS DIVISION

Extracted from Vol. V, No. 48, 30 November 1945, "Weekly Health Report"







# MORBIDITY AND MORTALITY, 1819-1944

The charts on the following pages are based on the most valid data concerning morbidity and mortality in the U. S. Army currently available in the Office of The Surgeon General. Reasonably complete and accurate morbidity and mortality records of the United States Army were first collected during 1819. With the exception of the years, 1833, 1834, and 1836 for which no data are available, the records for the United States Army form the longest consecutive series of annual health records in this country. Morbidity and mortality data during the periods of the Mexican War, 1847 and 1848 and the Civil War, 1862-1866 are incomplete and are not shown on the charts presenting rates by calendar years. Annual mortality rates for the civilian population were first collected on a national basis in 1900. Even though Army troops form a small selected group of the total population of the country, the general trend in morbidity and mortality rates undoubtedly reflects the changes which have taken place in the health of the entire population.

## Trend in Admissions to Sick Report, 1819 - 1944

During the century and a quarter which has elapsed since 1819, the annual admission rate to sick report has decreased about 75 percent so that today it is only one fourth as high as it was during the 1820's. Just prior to the outbreak of World War II about 6 or 7 out of every 10 soldiers were excused from duty for one day or longer due to ill health; in the early years of the past century each soldier, on the average, was excused from duty from 2 to 3 times each year for similar reasons.

The highest admission rates were recorded just before and after the War with Mexico, the largest

being 3847 per 1000 per annum in 1841 due, in part at least, to the campaign against the Indians in Florida. Little or no improvement occurred in the health of the Army until after the Civil War. Malaria, typhoid fever, diarrhea and dysentery, cholera, smallpox and other communicable diseases were the principal causes of non-effectiveness. Improvements in sanitation and hygiene and in the control of infectious and parasitic diseases started a decline in the admission rate from disease shortly after the Civil War which has continued since that time except during the Spanish American War and World Wars I and II.

Prior to World War I colored troops were excused from duty due to ill health in approximately the same relative numbers as white troops. However, during the period between World Wars I and II the admission rates from both disease and injury for colored troops were definitely less than those for white troops, reflecting largely differences in assignment and geographic distribution. Mobilization of new troops before and during World War II resulted in a sharp rise in the illness rates of both white and colored men; the rates among colored troops increased more rapidly, partly as a result of the greater prevalence of venereal disease, so that their more favorable health experience had vanished by the end of 1941.

## Trend in Non-Effectives, 1867 - 1944

The decline in the admission rate during the past century and a quarter has produced a corresponding decline in the average daily number of non-effectives. At the close of the Civil War when the first data on non-effectiveness in the Army are available, between 5 and 6 percent of the troops were constantly non-effective as a result of disease or injury. By 1940,







## MORBIDITY AND MORTALITY, 1819-1944 (CONT'D)

when mobilization for World War II began, this figure had dropped to about 3 percent. During World War II the rate rose again but did not reach the level of either World War I or the Spanish War in spite of the global distribution of troops. The relatively small increase in this war contrasts graphically with the experience during the Spanish War and the Philippine Insurrection when American troops were first exposed to tropical diseases. At that time the non-effective rate jumped from about 3.5 percent to nearly 8.5 percent. Fifteen years passed before the rate again fell to pre-war levels.

Prior to World War I colored and white troops experienced approximately the same non-effective rates. After World War I, following the decline in admission rates, the non-effective rate of colored troops remained well below that of white troops. However, this difference was reversed during World War II.

### Trend in Death Rates, 1819 - 1944

Even more spectacular than the decrease in the amount of illness among Army troops has been the decrease in the death rate. Up until the Civil War the death rate from disease fluctuated widely depending upon the presence or absence of epidemics of communicable diseases. The highest rate, 80 per 1000 per annum, or 8 percent of the troops was recorded in 1849. This rate is more than 130 times that prevailing during World War II. The most impressive medical development of World War II was the prevention of death from disease. Contrary to the experience of previous wars, the death rate from disease actually decreased during the war just ended. Mobilization of an army of 8,000,000 men and deployment throughout the entire world occurred simultaneously with a

decrease in the death rate from disease from 2.0 to 2.5 per 1000 per annum prior to the war to a rate of only 0.6 per 1000 during the war. At present, the death rate from disease in the Army is only about one fourth the corresponding death rate among males of the same ages in the civilian population.

The death rate from non-battle injury which declined more than 50 percent between the end of the Civil War and World War I showed no definite trend after 1920 until the outbreak of World War II. The increasing mechanization of the Army especially the increase in the use of airplanes has tended to maintain the death rate from injury at a level of about 2.0 per 1000 per annum.

Contrary to the case with respect to admission and non-effective rates, the death rate from disease generally has been higher among colored than among white troops. The death rate from non-battle injury among colored troops fluctuates widely due to the relatively small number of men involved but has been consistently below the rate for white troops since World War I due largely to assignment to less hazardous jobs.

### Wounds and Deaths in Major Wars

The impressive advances which have been made in military medicine during recent years is graphically demonstrated by the fact that World War II was the first major war in which this country has participated that deaths from battle causes have exceeded deaths from disease. It might be thought that the larger number of battle deaths result from more intensive combat with more deadly weapons than were available during past wars. But this is not the case. The number of battle deaths per annum per 1000 troops in service was less than 60 percent of that during World







## MORBIDITY AND MORTALITY 1819-1944 (CONT'D)

War I and only 25 percent of the corresponding number among northern troops during the Civil War.

During World War II, 13 men died in battle for every man who died from disease; during the Spanish-American War the ratio was reversed, 13 men dying from disease for every man dying in battle. Without the effective control which the Medical Department exercised over disease, it is almost certain that World War II could not have been brought to a victorious end at the time when it actually was. During the Civil War 71 men per 1000 troops died from disease each year. If the same rate had prevailed during World War II, the Army would have lost more than 1,600,000 men from deaths due to disease instead of the actual number, 13,700. Obviously, losses of this magnitude would have seriously impaired the successful prosecution of the war.

In spite of the fact that World War II was a global war and that the number of men mobilized was several times larger than during any previous war, the number of deaths from all causes fell well below the number of deaths during the Civil War. While records are incomplete, it is estimated that the Civil War cost about 620,000 lives among the northern and southern forces combined. The combined losses due to death among both Army and Navy personnel during World War II did not exceed 375,000 persons or about 60 percent of the number of deaths during the Civil War.

Although the control of disease was the most important factor in the prevention of death during World War II, the increase in the proportion of the wounded who recover should not be forgotten. An exact comparison of the case fatality rate among wounded personnel cannot be made due to varying practices in counting the number of wounded and the number which died of wounds as well as differences in the accuracy and completeness of the statistical information. Nevertheless, the reported case fatality rates probably reflect the relative rank of the various wars with respect to the percentage of wounded who subsequently die as a result of their wounds. The percentage of the wounded who died of wounds has been as follows, Civil War, about 14 percent; World War I including gas casualties, 6.1 percent or 8.3 percent if only gunshot wounds are included; and World War II, about 4.4 percent. These figures are case fatality rates and consequently differ from those shown in the table since the latter are annual death rates per 1000 strength. The reduction in the case fatality rate during World War II saved the lives of from 20,000 to 25,000 wounded personnel.



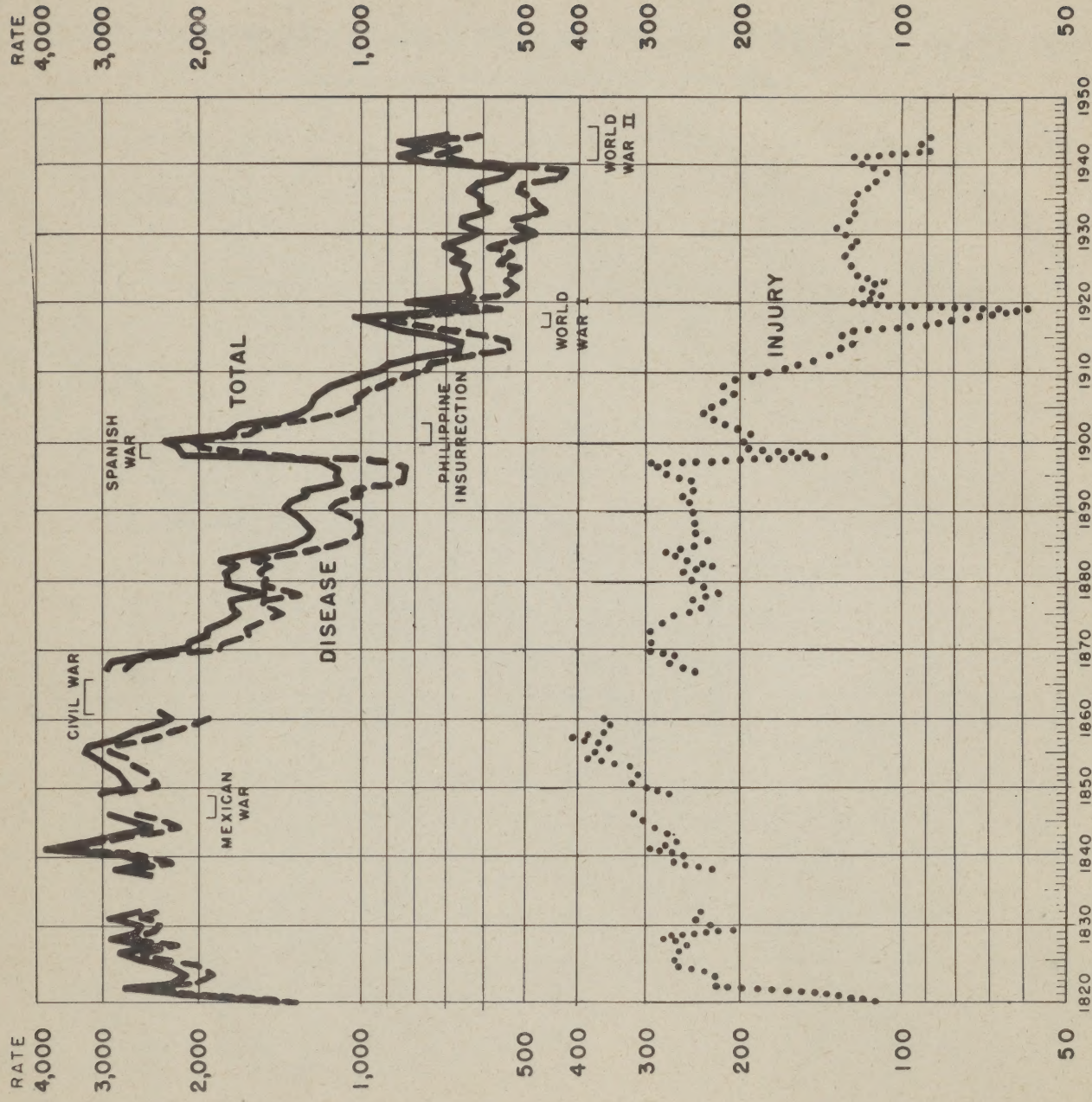




# ADMISSIONS TO SICK REPORT — DISEASE, INJURY, AND TOTAL

1819 — 1944

ADMISSIONS PER 1,000 TROOPS PER YEAR



BATTLE CASUALTIES NOT INCLUDED IN WORLD WAR I & II. PUERTO RICAN AND FILIPINO TROOPS NOT INCLUDED IN YEAR 1904 THROUGH 1910. NO RECORDS AVAILABLE FOR 1833 — 1836, INCLUSIVE; 1861 — 1866 INCLUSIVE. RELIABLE DATA IS NOT AVAILABLE FOR THE MEXICAN WAR PERIOD (1847 — 1848). FISCAL YEAR ENDING 30 JUNE FOR PERIOD 1867 — 1882, INCLUSIVE.

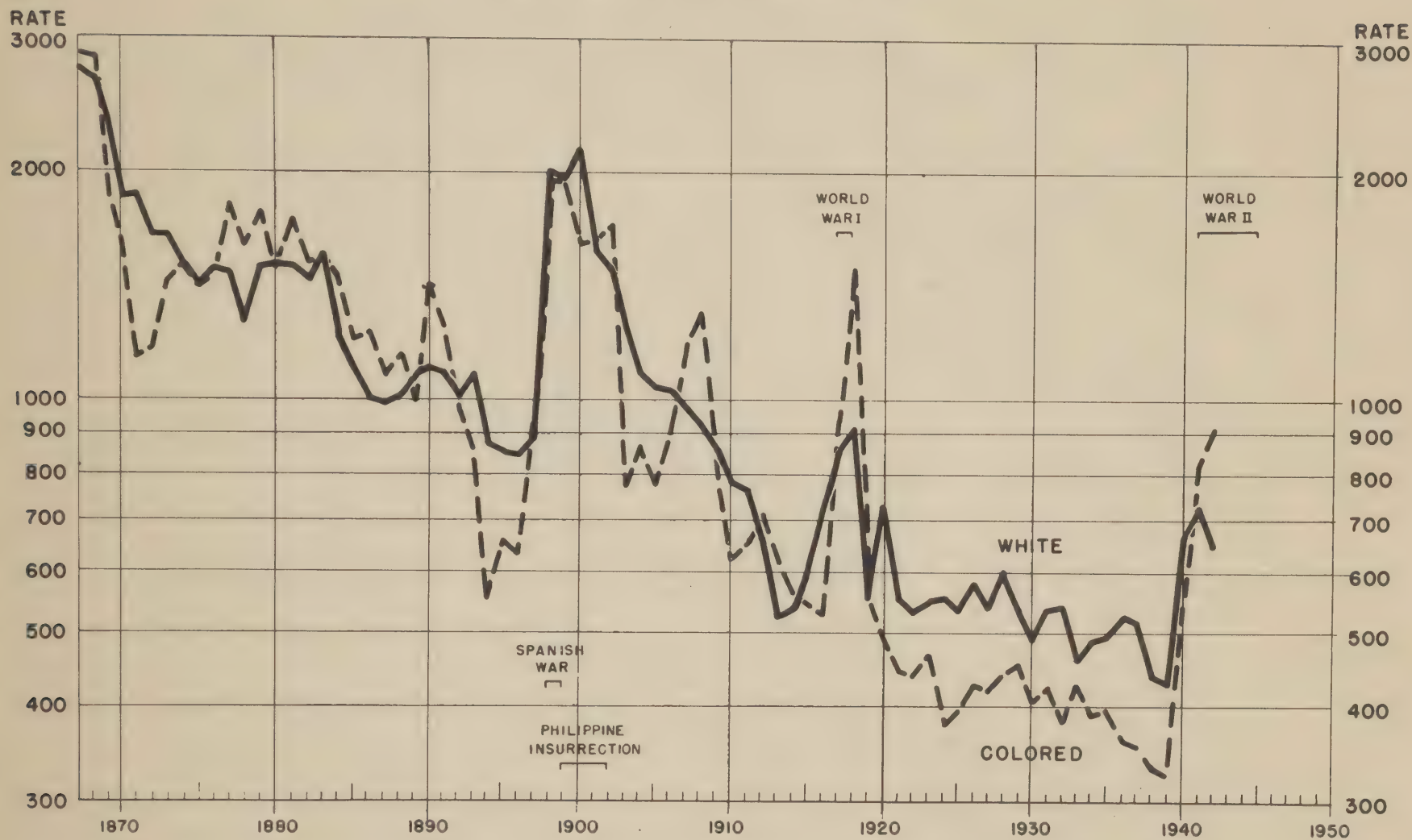






# DISEASE ADMISSIONS — WHITE AND COLORED TROOPS, 1867 - 1942

ADMISSIONS PER 1000 TROOPS PER YEAR



FISCAL YEAR ENDING 30 JUNE FOR PERIOD 1867 - 1882, INCLUSIVE.

PUERTO RICAN AND FILIPINO TROOPS NOT INCLUDED IN YEARS 1904 THROUGH 1910.







# INJURY ADMISSIONS — WHITE AND COLORED TROOPS, 1862 - 1942

ADMISSIONS PER 1000 TROOPS PER YEAR



FISCAL YEAR ENDING 30 JUNE FOR PERIOD ENDING 1867-1882, INCLUSIVE.  
 PUERTO RICAN AND FILIPINO TROOPS NOT INCLUDED IN YEARS 1904 THROUGH 1910.  
 BATTLE CASUALTIES NOT INCLUDED IN WORLD WARS I AND II.

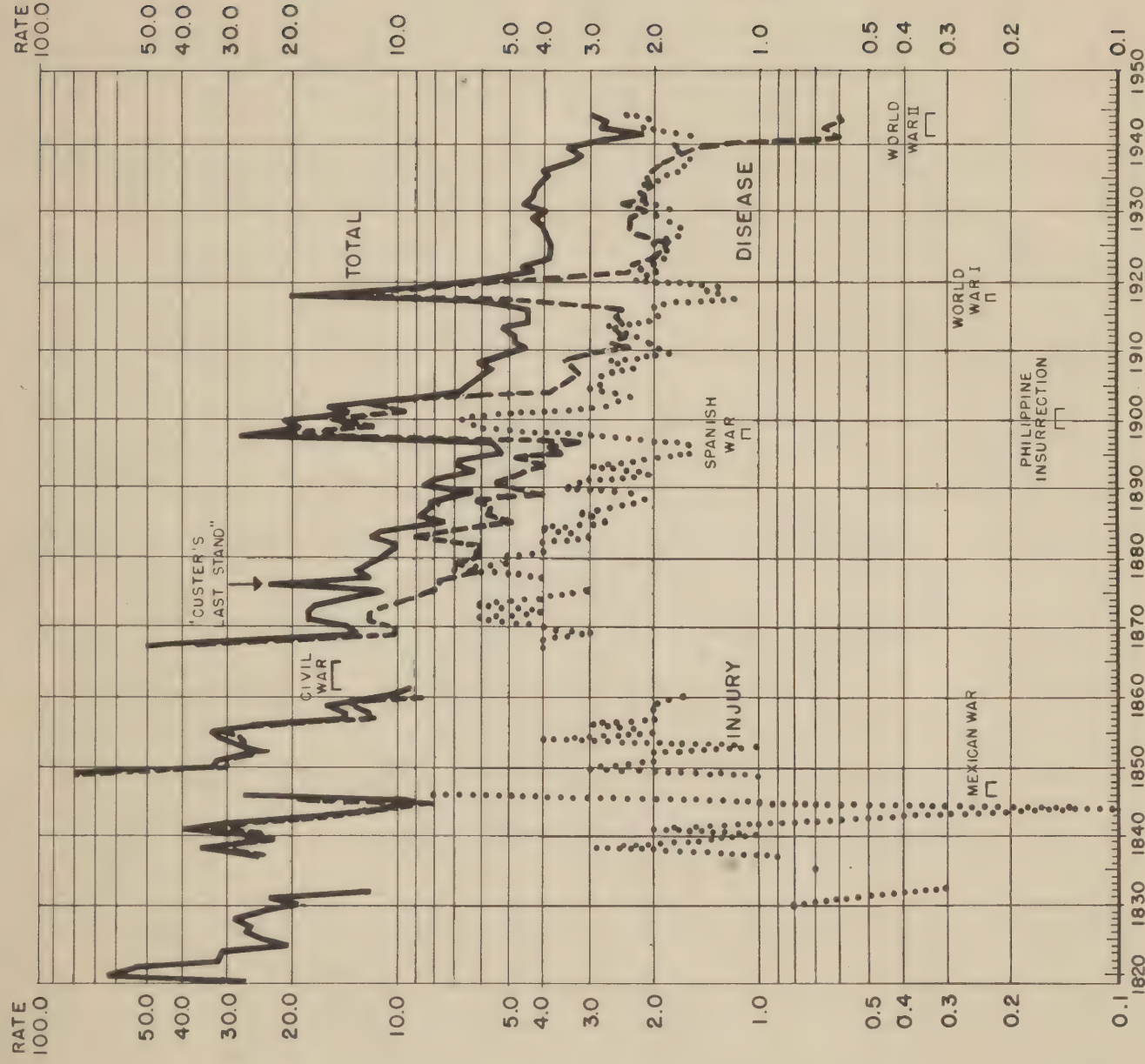






# DEATHS - DISEASE, INJURY, AND TOTAL, 1819 - 1944

DEATHS PER 1000 TROOPS PER YEAR



INCLUDES KILLED IN ACTION AND DIED OF WOUNDS AS FOLLOWS: { YEAR RATE YEAR YEAR  
1898 1.7 1900 4.2  
1899 4.6 1901 1.5

PUERTO RICAN AND FILIPINO TROOPS NOT INCLUDED IN YEARS 1904 THROUGH 1910

NO RECORD AVAILABLE FOR 1833-1836, INCLUSIVE, 1861-1866 INCLUSIVE RELIABLE DATA IS NOT AVAILABLE FOR THE MEXICAN WAR PERIOD, 1847-1848.

FISCAL YEAR ENDING 30 JUNE FOR PERIOD 1867-1882, INCLUSIVE.

BATTLE CASUALTIES NOT INCLUDED IN WORLD WARS I AND II.

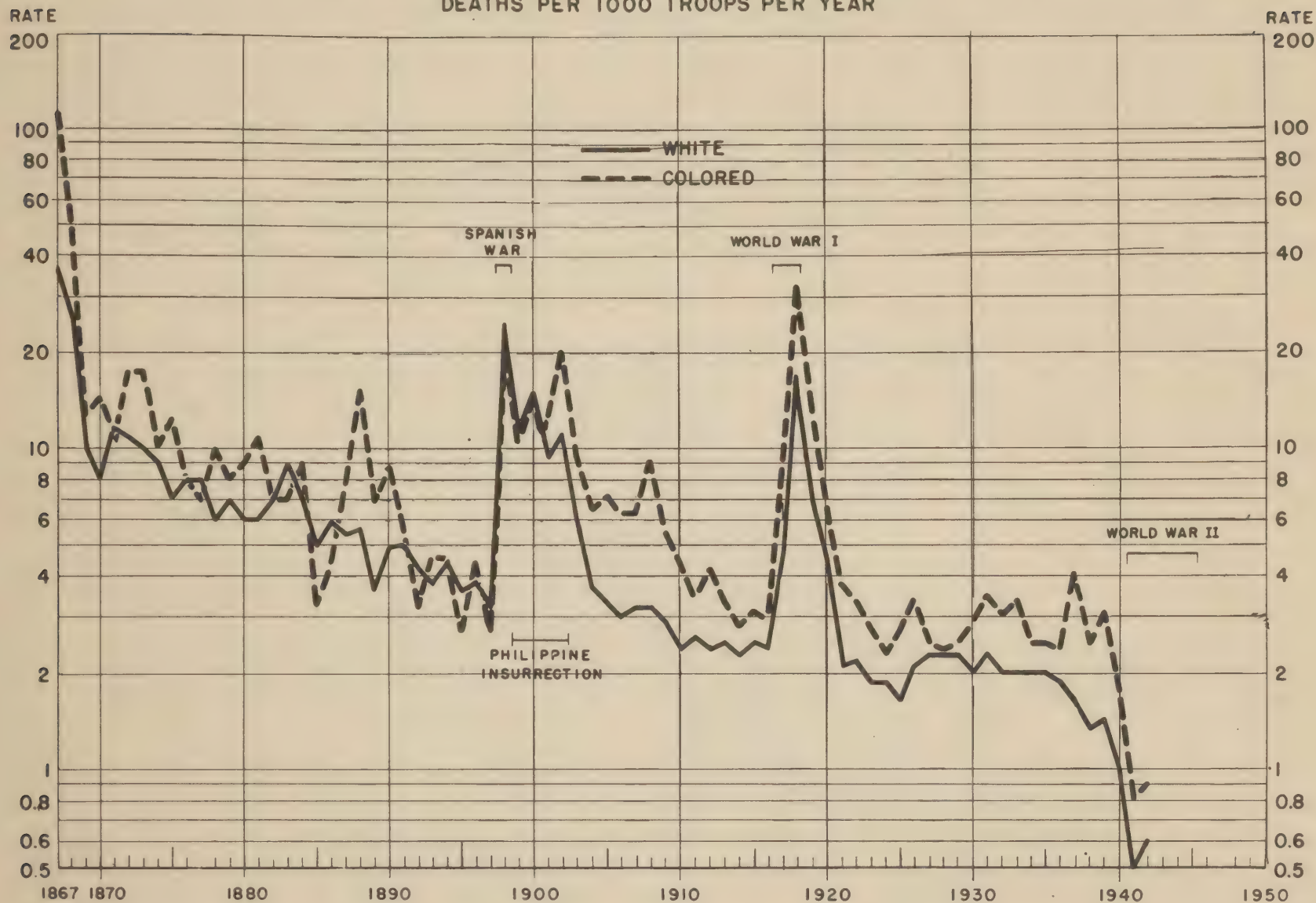






# DEATHS FROM DISEASE-WHITE AND COLORED, TROOPS, 1867-1942

DEATHS PER 1000 TROOPS PER YEAR



FISCAL YEAR ENDING 30 JUNE FOR PERIOD 1867-1882, INCLUSIVE

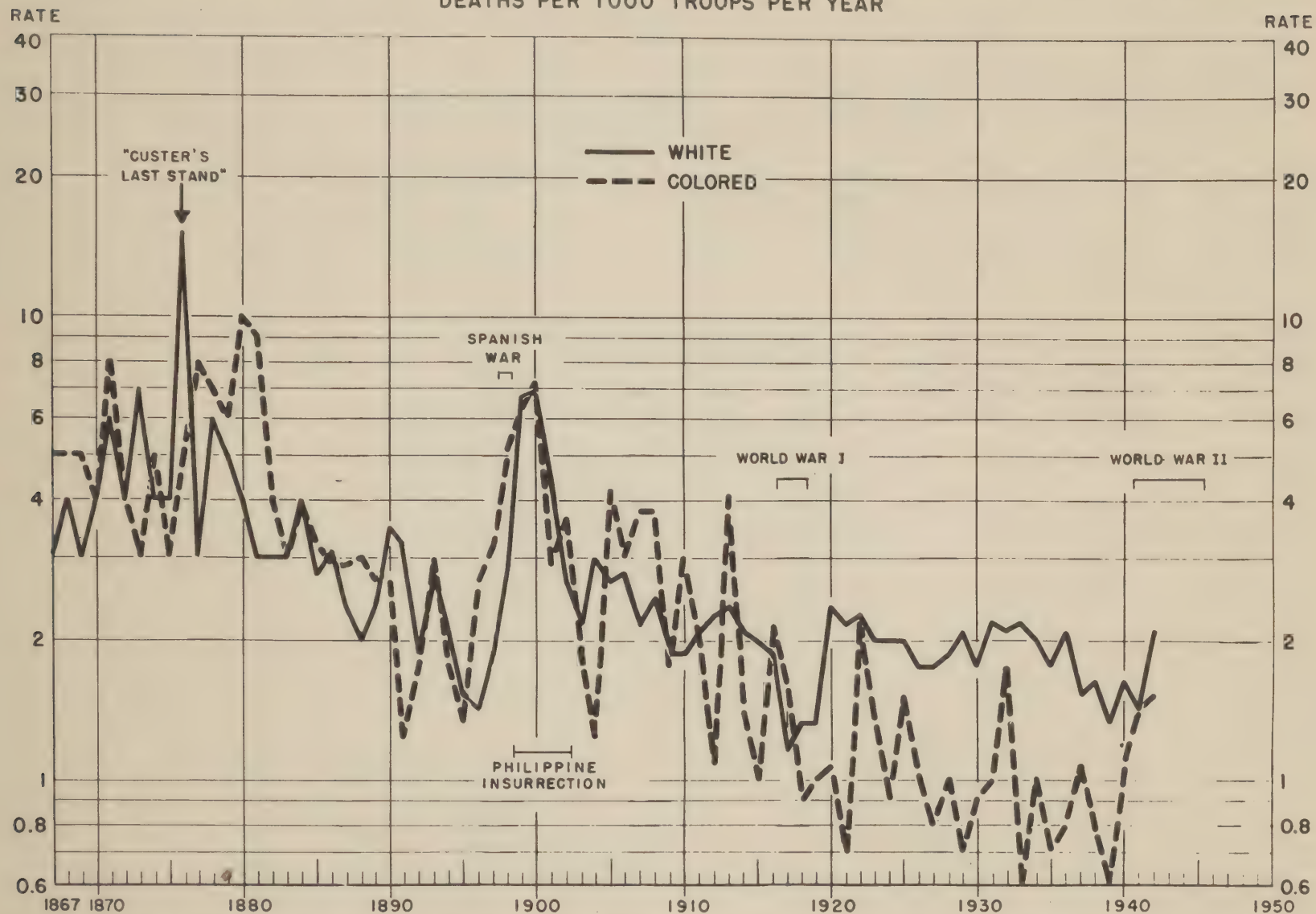
PUERTO RICAN AND FILIPINO TROOPS NOT INCLUDED IN YEARS 1904 THROUGH 1910.





# DEATHS FROM INJURY—WHITE AND COLORED TROOPS, 1867-1942

DEATHS PER 1000 TROOPS PER YEAR



FISCAL YEAR ENDING 30 JUNE FOR PERIOD 1867-1882, INCLUSIVE. PUERTO RICAN AND FILIPINO TROOPS NOT INCLUDED IN YEARS 1904 THROUGH 1910. BATTLE CASUALTIES NOT INCLUDED IN WORLD WARS I AND II.





# WOUNDS AND DEATHS

AMERICAN LAND FORCES DURING MAJOR WARS  
ABSOLUTE NUMBERS AND ANNUAL RATES PER 1000

	TOTAL WOUNDED INCLUDES DIED OF WOUNDS		KILLED IN ACTION INCLUDES DEATHS WHILE PRISONERS		DIED OF WOUNDS		DIED OF NON-BATTLE INJURIES		DIED FROM DISEASE		TOTAL BATTLE DEATHS		TOTAL NON-BATTLE DEATHS		TOTAL DEATHS	
	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE	NUMBER	RATE
<b>MEXICAN WAR</b> APR. 1846 — FEB. 1848	3,420	32.4	1,049	9.9	508	4.8	395	3.7	10,982	103.9	1,557	14.7	11,377	107.6	12,934	122.3
<b>NORTH CIVIL WAR</b> APR. 1861 — APR. 1865  <b>SOUTH</b>	318,187	96.6	69,982	21.3	44,775	13.6	10,982	3.4	233,789	71.2	114,757	34.9	244,771	74.6	359,528	109.5
	INCOMPLETE DATA -----										95,000	*	165,000	*	260,000	*
<b>SPANISH WAR</b> MAY 1898 — DEC. 1898	1,604	12.0	272	1.9	107	0.8	288	2.0	4,795	34.0	379	2.7	5,083	36.0	5,462	38.7
<b>PHILIPPINE INSURRECTION</b> JAN. 1899 — DEC. 1902	3,083	8.1	823	2.2	241	0.6	1,063	2.8	4,874	12.9	1,064	2.8	5,937	15.7	7,001	18.5
<b>WORLD WAR I</b> APR. 1917 — DEC. 1918	224,089	72.0	37,568	12.0	13,691	4.4	4,421	1.4	51,447	16.5	51,259	16.4	55,868	17.9	107,127	34.3
<b>WORLD WAR II**</b> DEC. 1941 — AUG. 1945	599,000		210,600	8.6	27,000						237,600	9.7			305,600	12.6
	598,000	25.4	190,500	8.1	26,500	1.1	54,300	2.3	13,700	0.6	217,000	9.2	68,000	2.9	285,000	12.1

\*\* World War II data preliminary, check with Medical Statistics Div.  
(Health Rpt. Br.) before using.

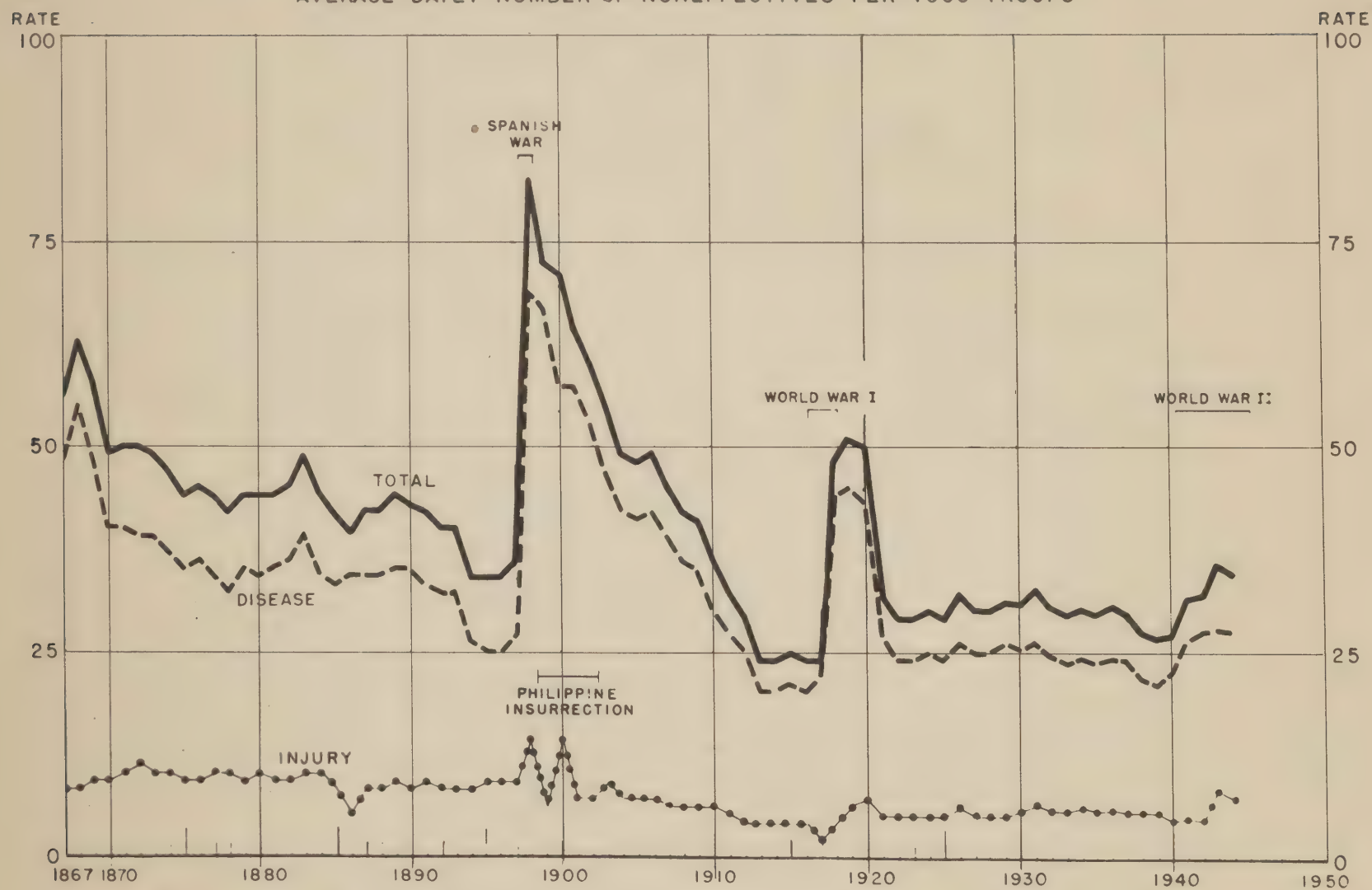
\* STRENGTH NOT AVAILABLE





# NONEFFECTIVES — DISEASE, INJURY, AND TOTAL, 1867-1944

AVERAGE DAILY NUMBER OF NONEFFECTIVES PER 1000 TROOPS



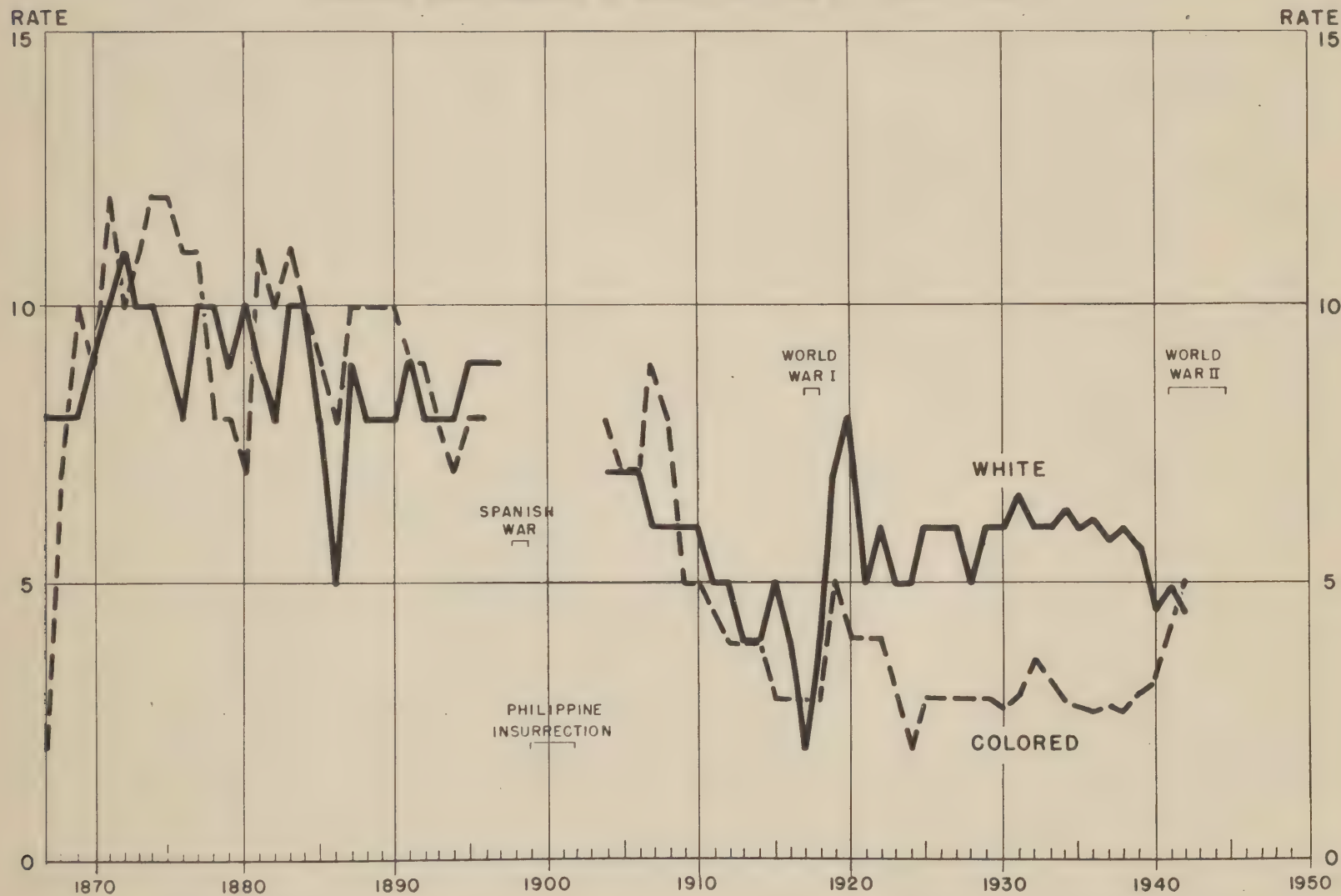
FISCAL YEAR ENDING 30 JUNE FOR PERIOD 1867-1882, INCLUSIVE  
 PUERTO RICAN AND FILIPINO TROOPS NOT INCLUDED IN YEARS 1904 THROUGH 1910  
 BATTLE CASUALTIES NOT INCLUDED IN WORLD WARS I AND II





# NONEFFECTIVES FROM INJURY—WHITE AND COLORED TROOPS, 1867-1942

AVERAGE DAILY NUMBER OF NONEFFECTIVES PER 1000 TROOPS



FISCAL YEAR ENDING 30 JUNE FOR PERIOD 1867-1882, INCLUSIVE.

PUERTO RICAN AND FILIPINO TROOPS NOT INCLUDED IN YEARS 1904 THROUGH 1910.

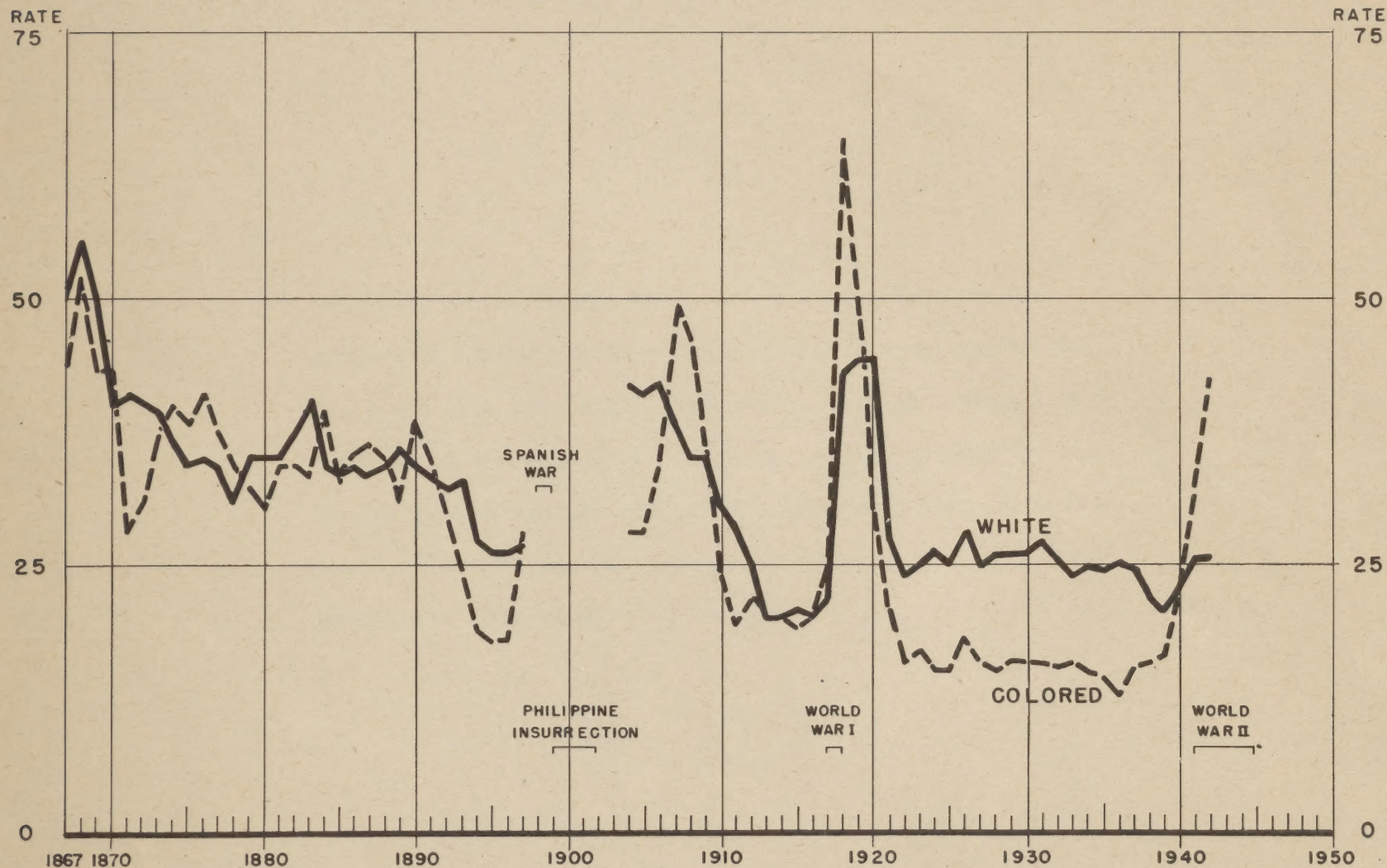
DATA NOT AVAILABLE FOR PERIOD 1898 THROUGH 1903.





# NONEFFECTIVES FROM DISEASE—WHITE AND COLORED TROOPS, 1867-1942

AVERAGE DAILY NUMBER OF NONEFFECTIVES PER 1000 TROOPS



FISCAL YEAR ENDING 30 JUNE FOR PERIOD 1867-1882, INCLUSIVE.  
 PUERTO RICAN AND FILIPINO TROOPS NOT INCLUDED IN YEARS 1904 THROUGH 1910.  
 DATA NOT AVAILABLE FOR PERIOD 1898 THROUGH 1903.





Data presented for World War II are preliminary and subject to correction when final tabulations are available. Since the date of original publication certain corrections of portions of the data have been made, but, in general the corrected figures are not sufficiently different from those presented to affect the rates to an extent warranting a general revision at this time.



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